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## **PREDICTION OF VASCULAR ACCESS STENOSIS: BLOOD TEMPERATURE MONITORING WITH TWISTER VS STATIC INTRA-ACCESS PRESSURE RATIO**

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**Objectives:** K/DOQI guidelines recommend intra-access flow (Qa) measurement as the preferred vascular access surveillance method, followed by static intra-access pressure ratio (SIAPR). Recently, it has become possible to perform access flow measurements during HD using in the dialysis machine itself (blood temperature monitoring: BTM<sup>®</sup>) with the Twister<sup>™</sup> device. The aim of this study was to investigate the relationship between Qa by BTM and SIAPR, and to compare the performance of two tests in prediction of vascular access stenosis

**Methods:** 133 chronic HD patients with a functioning vascular access were enrolled. 99 patients had AVFs and 34 patients had AVGs. Qa by BTM and venous SIAPR were simultaneously measured every 1 or 2 months, for a total of 686 measurement sessions (473 AVFs, 213 AVGs). Angiography was determined based upon physical examination or Qa decrease by more than 25%. A total of 64 angiograms were performed and all met the critical stenosis

**Results:** Mean age was 60.1±11.1 years; 59 (60.0%) were men, 85 (63.9%) were diabetes. The mean Qa at the vascular access obtained by BTM was 1337±788 mL/min. There was correlation between Qa by BTM and venous SIAPR in AVGs ( $r = -0.215$ ,  $P = 0.002$ ). AVGs in the study with abnormal SIAPR had lower Qa than AVGs with normal SIAPR (965±492 vs. 1241±679 mL/min,  $P = 0.004$ ). AVFs shows similar pattern. The optimal tests for identifying stenosis of AVGs and AVFs were Qa <650 mL/min (sensitivity 81%, specificity 88%, AUC 0.83). SIAPR did not seem to be useful either because its sensitivity and specificity were lower. (sensitivity 64%, specificity 56%, AUC 0.60).

**Conclusions:** Although venous SIAPR correlate with Qa by BTM in AVGs, it did not discriminate between high and low Qa. Vascular access stenosis can be detected during hemodialysis treatment using Qa measurement by BTM better than SIAPR as screening procedures.